METHOD, SYSTEM AND PROGRAM FOR SPECIFYING AN ELECTRONIC FOOD MENU ON A DATA PROCESSING SYSTEM

BACKGROUND OF THE INVENTION

1. Technical Field:

The present invention relates in general to an improved method, system and program for presenting a food menu electronically, and in particular to a method, system and program for efficiently specifying an electronic food menu. Still more particularly, the present invention relates to a method, system and program for specifying an electronic menu for a particular customer on a data processing system.

2. Description of the Related Art:

The global economy has made the business of selling more competitive than ever. Businesses that do not maximize customer satisfaction and profitability will typically not survive in today's markets. Businesses are therefore demanding tools and methods to provide their competitive edge.

In the area of food sales, maximizing customer satisfaction is particularly important to businesses. It is commonly recognized that what and when a person eats has a great impact on a person's overall health and well being. Therefore, in maximizing customer satisfaction, there has been a shift towards providing the customer with menus that provide for customer needs. For example, many menus indicate entrees for heart health conscious customers.

In addition to heart healthy selections, other factors come together for customers selecting from a menu. For example a customer may make menu selections based on personal health reasons such as diabetes, heart disease, food allergies and sensitivity to heart burn. In addition, a recovering alcoholic or one who avoids caffeine may select items that do not include these substances. In another example, a customer may select food based on philosophical reasons, such as selecting foods that are only grown organically. Alternatively, an entrée's assumed aesthetic effect on the body may effect a customer's selection depending on whether the customer is attempting to lose or gain weight. Further, religious reasons may frequently prohibit not only what can be eaten and when, but how the food is prepared.

While there have been efforts to provide more information about food on a menu, it is typically difficult to know what one is eating, when dining out or purchasing preprocessed food. Some menus now include a list of some ingredients and some waiters may know the main ingredients of dish, however finding out a list of every ingredient and preparation thereof is typically not available or there is not an efficient way for the information to be provided. Likewise, requesting actions that deviate from the norm are often miscommunicated enroute to the cooking/preparation staff. For example, requesting that an ingredient, like onions, be removed.

Another difficulty in purchasing food for some can be the way that a menu is provided. For example, seeing-impaired customers typically have difficulty reading a menu in restaurants and other food venues. In addition, when in a foreign country, menus in a language understood by the customer may not be available. Moreover, when in

a foreign country converting currency to determine the
relative expense of an item in one's typical currency can
be time consuming.

5   Therefore, in view of the aforementioned, it would
be preferable to provide a method for customers to easily
attain a list of menu items which meet their ordering
criteria and menu items which do not meet their ordering
criteria. In addition, it would be preferable to provide
10   a method for cooking/preparation staff to receive
customer's orders with any special requests in an
efficient manner. Further, it would be preferable to
provide a method for rendering a menu such it is easily
understandable according to a user's preferences.

SUMMARY OF THE INVENTION

In view of the foregoing, it is therefore an object
of the present invention to provide an improved method,
5   system and program for presenting a food menu
electronically.

It is another object of the present invention to
provide a method, system and program for efficiently
10   specifying an electronic food menu.

It is yet another object of the present invention to
provide a method, system and program for specifying an
electronic food menu for a particular customer on a
15   personal data processing system.

In accordance with the method, system and program of
the present invention, multiple food menu items are
retrieved from a data storage medium by a data processing
20   system with access to the data storage medium via a
communications medium. The multiple food menu items are
compared with previously stored food preferences for a
particular customer. A food menu is selected, wherein
the food menu items that satisfy said food preferences
25   for said particular customer are distinguished, such that
an electronic food menu is specified for a particular
customer.

All objects, features, and advantages of the present
30   invention will become apparent in the following detailed
written description.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention itself, as well as a preferred mode of use, further objects, and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

FIG. 1 depicts a block diagram of a typical computer system that may utilize a preferred embodiment of the present invention;

FIG. 2 illustrates a system for selecting an electronic food menu in accordance with the method and system of a preferred embodiment of the present invention;

FIG. 3 depicts multiple types of computer systems which may be utilized to specify an electronic food menu in accordance with the method an system of the present invention;

FIG. 4 illustrates a block diagram of a storage structure for food menu items in accordance with the method and system of the present invention;

FIG. 5 depicts a block diagram of a storage structure for a selection of food preferences in accordance with the method and system of the present invention;

FIGS. 6a-6c illustrate a graphical representation of a specialized electronic food menu in accordance with the method and system of the present invention;

FIG. 7 depicts a high level logic flowchart of a process for specializing an electronic food menu for a particular customer in accordance with the method and system of the present invention;

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FIG. 8 illustrates a high level logic flowchart of a process for placing a food order in accordance with the method and system of the present invention; and

10   FIG. 9 depicts a high level logic flowchart of a process for presenting electronic coupons.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The present invention may be executed in a variety of systems, including a variety of computers under a number of different operating systems. The computer may be, for example, a personal computer, a personal digital assistant, a network computer, a midrange computer or a mainframe computer. In addition, the computer may be a stand-alone system or part of a network such as a local-area network (LAN) or a wide-area network (WAN). Therefore, in general, the present invention is preferably executed in a computing device that performs computing tasks such as manipulating data in storage that is accessible to the computing device. In addition, the computing device preferably includes at least one output device and at least one input device.

Referring now to the drawings and in particular to **Fig.1**, there is depicted a block diagram of a typical computer system that may utilize a preferred embodiment of the present invention. As shown, a processor (CPU) **12**, a read-only memory (ROM) **13**, and a Random-Access Memory (RAM) **14** are connected to a system bus **11** of a computer system **10**. CPU **12**, ROM **13**, and RAM **14** are also coupled to a PCI local bus **20** of computer system **10** through a PCI host bridge **16**. PCI host bridge **16** provides a low latency path through which processor **12** may directly access PCI devices mapped anywhere within bus memory and/or I/O address spaces. PCI host bridge **16** also provides a high bandwidth path for allowing PCI devices to directly access RAM **14**.

Also attaching to PCI local bus **20** are communications adapter **15**, small computer system interface (SCSI) **18**, and expansion bus bridge **29**. In the present embodiment,

communications adapter **15** is for connecting computer
system **10** to a network **17**. In alternate embodiments,
communications adapter **15** may provide for communicating
via wireless transmissions, including but not limited to,
radio frequency (RF) transmissions or infrared
transmissions.

SCSI **18** is utilized to control high-speed SCSI disk
drive **19**. Alternatively, other types of data storage
medium may be utilized. Expansion bus bridge **29**, such as
a PCI-to-ISA bus bridge, may be utilized for coupling ISA
bus **25** to PCI local bus **20**. As shown, a keyboard **26** and a
mouse **28** are attached to ISA bus **25** for performing certain
basic I/O functions. In addition, an audio adapter **23** is
attached to PCI local bus **20** for controlling audio output
through speaker **24**. A graphics adapter **21** is also attached
to PCI local bus **20** for controlling visual output through
display monitor **22**. In alternate embodiments of the
present invention, additional peripheral components may be
added. For example, in alternate embodiments, a tactile
display component may be provided.

Computer system **10** also preferably includes an
interface such as a graphical user interface (GUI) and an
operating system (OS) that reside within machine readable
media to direct the operation of computer system **10**. Any
suitable machine-readable media may retain the GUI and OS,
such as RAM **14**, ROM **13**, SCSI disk drive **19**, and other disk
and/or tape drive(e.g. magnetic diskette, magnetic tape,
CD-ROM, optical disk, or other suitable storage media).
Any suitable GUI and OS may direct CPU **12**. For example,
the AIX operating system is one of IBM's operating systems
which may be implemented.

Further, computer system **10** preferably includes at
least one software application(e.g. program product) that
resides within machine readable media, for example menu
specification application **9** in RAM **14**. A software
application contains instructions that when executed on
CPU **12** carry out the operations depicted in the flowcharts
of **FIG. 7**, **FIG. 8**, and others described herein.

With reference now to **FIG. 2**, there is depicted a
system for selecting an electronic food menu in accordance
with the method and system of a preferred embodiment of
the present invention. As depicted, a data storage medium
40 comprises a database of food menu items **42**. Preferably
the database of food menu items **42** comprises multiple food
menu names with descriptions, prices, ingredients,
ingredient quantities, preparation techniques and other
food/health data for each food menu item.

In accordance with the present invention, a computer
system **10** communicates with data storage medium **40** via a
communications medium. In addition, computer system **10**
communicates with other data processing systems (not
shown) via a communications medium. The communications
medium may comprise wireless communications, network
communications, a wired connection or other communication
media that enables transmission of data to and from
computer system **10** and data storage medium **40**. In
addition, computer system **10** is preferably enabled to
communicate via multiple communications media. Wireless
RF communications are preferably supported by the
Bluetooth or other RF transmission specification.
Data exchange across the communications medium is
preferably supported by a data transmission protocol such
as extensible mark-up language (XML). In addition, a data
translation file such as a document type definition (DTD)

or schema is preferably provided to validate and translate
the XML data. Moreover, a style sheet such as an XSL file
is preferably utilized to provide a display specification
for the XML data.   In addition, a web page or other

5   network graphical interface may be accessed in order to
access the XML data. For example, a particular restaurant
may provide a web page for accessing the XML encoded data
that includes food menu items **42** and other data.

10   Computer system **10** preferably includes stored food
preferences **46** that are specified for a single user or
multiple users. Food preferences **46** may include a
specified price range for meals, ingredients to avoid,
preparation preferences, current medications and

15   selections of other food and health criteria such as a
preference for heart smart meals. Food preferences **46** may
include food preferences for a single customer or multiple
customers. In alternate embodiments, food preferences **46**
may be stored in a data storage medium that is externally

20   or remotely accessible by computer system **10**.   In
addition, computer system **10** may communicate through a
communications medium with other computer systems to
download food preferences to and from those computer
systems. Food preferences **46** and other transmittable data

25   stored on computer system **10** is preferably efficiently
stored in a particular data transmission protocols such as
XML.

           Multiple levels of security may be specified for each

30   set of food preferences **46** stored on computer system **10**.
For example, a shield from personal data stored with food
preferences **46** such as a name, phone number, address, etc.
may be shielded from transmittal and access. As will be
understood by one well known in the art, multiple types of

security methods and filters may be applied to food
preferences **46** and other data on computer system **10**.

According to the method and system of the preferred
embodiment, computer system **10** retrieves food menu items
42 from data storage medium **40**, compares food menu items
42 with food preferences **46**, and selects a food menu
wherein those food menu items which satisfy food
preferences **46** are designated. Computer system **10** then
outputs the specified electronic food menu.
Alternatively, a food menu of food menu items **42** may be
output by computer system **10** without designating
particular food menu items. For example, when no food
preferences are designated, a food menu of all food menu
items without food preference based designation may be
provided.

In some cases, food menu items that do not satisfy
food preferences **46** may be able to satisfy food
preferences **46** if a particular ingredient or ingredients
are removed or if a replacement ingredient is utilized.
For example, at a restaurant that serves chocolate
milkshakes, a customer that specifies no caffeine in their
food preferences would receive a specified electronic food
menu where caffeine would be shown as the reason the food
menu item does not satisfy their food preferences. In
addition, the electronic food menu would show specifically
that the chocolate syrup in the food menu item contains
the caffeine. The customer may then order the chocolate
milkshake with an indication not to add chocolate syrup.
In the same example, the chocolate milkshake may be made
with 2% milk that has a greater amount of fat per serving
than the food preferences for the customer allow. The
specified electronic food menu would indicate that the
milkshake does not satisfy the food preferences because of

the fat content of the milk. The customer may then
request that skim milk be utilized in making the milkshake
instead of 2% milk.

5   Preferably, as a customer removes or substitutes
ingredients, the overall dietary value of a food menu item
is recalculated and other fields are updated in order that
the food menu item can be compared with the food
preferences again and the specified electronic food menu
10   updated. In addition, as the customer selects food menu
items, an overall dietary value of the food menu items
selected is preferably calculated.

          The specified electronic food menu may be output to
15   multiple peripherals. Examples of peripherals may
include, but are not limited to a graphical display, an
audio speaker, a tactile-detectable device, or a printer.
In addition, computer system 10 may include output
preferences 47 that are specified for a single user or
20   multiple users. Output preferences 47 may include, but
are not limited to specifications such as the size of font
in a graphical display, the type of tactile-detectable
output (e.g. Braille), the language, or the currency. The
specified electronic food menu is preferably output in
25   accordance with any output preferences 47.

          In addition, the values displayed for the specified
electronic food menu may be rendered in multiple formats
according to output preferences 47. For example, only
30   those food menu items that are designated may be
displayed. Alternatively, all food menu items are
displayed, but those food menu items that are not selected
are indicated graphically. In addition, under those items
that do not satisfy food preferences 46, ingredients that
35   do not satisfy food preferences 46 may be graphically

distinguished. Alternatively, food menu items are
displayed in a sequential format where the best selection
is displayed first and the worst selected displayed last.
In addition, alternative coloring and highlights may be
5   utilized to distinguish food menu items. For example, all
food menu items that are designated are highlighted in
bright green and those food menu items that are not
designated are highlighted in bright red. Moreover,
additional information about ingredients and other food
10   and health related data may be available if selected by
the customer.

The specified electronic food menu may include
designations of daily specials, such as the Monday
15   special. In addition to graphically distinguishing
specials, daily specials may be automatically added to an
electronic calendar **33** enabled on computer system **10**. In
the example of the Monday special, electronic calendar **33**
can provide a reminder of the Monday special each Monday.
20   Moreover, along with food menu items **42**, coupon items and
special offers may be transmitted with food menu items **42**.
For example, a coupon that is available for use during
that restaurant visit or another may be transmitted with
food menu items **42**. If not utilized during that visit,
25   the coupon can be stored and utilized for a subsequent
visit. Coupons may be filtered based on food preferences
46, such as an age-related coupon. Alternatively,
calendar based coupons may be transmitted with the food
menu items. For example, a coupon that can be utilized on
30   a particular Thursday when four or more dine may be
transmitted with the food menu items and added to
electronic calendar **33** on computer system **10**.

After displaying the specified electronic food menu,
35   computer system **10** may receive input designating an order

from the particular customer from the specified electronic
food menu. In addition, the customer may designate a
credit card number or other electronic money payment
method. Computer system **10** transmits the electronic money

5   payment data to data storage medium **40** or another payment
controller. Data storage medium **40** requests validation of
the electronic money payment, as is well known in the art.
If approved, computer system **10** attaches any food
preparation preferences that are designated in food

10   preferences **46** and transmits the food order to an order
queue **37** wherefrom a kitchen staff can access the order.
The order queue may adjust waiting for orders by
individual food preferences, group food preferences and
other criteria. For example, the order queue may adjust

15   waiting for orders based on the frequency that a customer
orders from the restaurant. While in the present
embodiment order queue **37** is included in data storage
medium **40**, in alternate embodiments, order queue **37** may be
externally or remotely accessible by data storage medium

20   **40** or stored in an alternate data storage medium.

Data storage medium **40** is preferably enabled to
retrieve and store customer food preferences in a customer
preference database **38**. By gathering food preferences of

25   customers ordering from a menu, a restaurant may utilize
the data to adjust their menu to meet customer needs and
preferences. Moreover, in knowing customer preferences,
coupons and food menu items that are transmitted to the
customer may be customized. For example, if a particular

30   customer always orders two drinks, two sandwiches and two
cookies, a special coupon may be transmitted to computer
system **10** for that particular customer that gives a
discount for ordering two drinks, two sandwiches and two
cookies. In another example, the number of coffees a

35   particular customer has purchased at a coffee shop may be

recorded such that on the 10th cup the customer receives a
free coffee.

In addition, computer system **10** is preferably enabled
to store specified electronic food menus **45** and
specialized food orders **49** such that the menus can be
recalled and reused at a later time and orders can be
queued off-line. For example, if a family of four is
planning which restaurant to eat at, computer system **10**
can compare electronic food menus **45** with the food
preferences for each member of the family. Each member of
the family may transmit their food preferences from their
computer system to one computer system **10** by infrared or
other short-range transmission medium. The restaurant or
restaurants that include food menu items that are suitable
for all members of the family are designated by computer
system **10**. In addition, any stored coupons for those
restaurants may be indicated. Moreover, each member of
the family may determine an order from the specified
electronic food menu and queue the orders on computer
system **10**. At the restaurant, the queued orders are
automatically transmitted to order queue **37** for the
kitchen.

In addition, a restaurant menu may be accessed on-
line by computer system **10**. A specified electronic food
menu may be determined based on food preferences **46**. In
addition, an order of food menu items from the specified
electronic food menu may be selected. The food order is
queued on computer system **10** at customer order **49** such
that the order can be automatically placed at the
restaurant. This function is particularly useful for a
parent restricting the eating of their child. The parent
may select food menu items that the child may order at
various restaurants or the school cafeteria from on-line

access to the restaurant menus. These specified orders
are queued for ordering when computer system **10** is
presented at one of those restaurants. This function is
also particularly useful for creating a diet plan where
food preference regulated meals from selected restaurants
can be queued on computer system **10** such that the customer
automatically orders a meal on their diet plan at the
selected restaurants. In an alternate example, a group of
co-workers may each specify an order from a particular
restaurant's menu accessed on-line and queue the orders
with their electronic payment data on computer system **10**.
Upon arriving at the restaurant, the queued orders can be
automatically retrieved from computer system **10** and
transmitted to order queue **37**. In addition, concurrent
with transmitting the order, electronic payment data is
transmitted.

Referring now to **FIG. 3**, there are illustrated
multiple types of computer systems which may be utilized
to specify an electronic food menu in accordance with the
method an system of the present invention. In the present
embodiment, data storage medium **40** is included as an
internal storage medium that is accessible by a server **48**.
In alternate embodiments, data storage medium **40** may be
external or remote to server **48** or an alternate data
processing system.

Multiple types of computer systems can retrieve data
from and transmit data to data storage medium **40** via a
communications link with server **48**. Examples of computer
systems include, but are not limited to, pervasive devices
such as a mobile telephone **50**, a personal digital
assistant (PDA) **52**, and a portable computer system **54**. In
addition a computer system may include and a desktop
computer **59** or other workstation. Although not depicted,
each of these computer systems may include additional

peripheral devices and may communicate with other computer systems.

As depicted, mobile telephone **50,** PDA **52** and a portable computing system **54** are preferably enabled to communicate with server **48** via wireless transmissions. For example, mobile telephone **50** may utilize a wireless network communications link with server **48** via the Internet or other network. In another example, a personal digital assistant **52** may utilize an infrared or RF communications link with server **48**. Alternatively, a desktop computer **59** may communicate with a server **58** via a network connection, whereby server **58** communications with server **48** via a network **56**, such as the Internet. In yet another embodiment, a computer system, such as portable computing system **54** may utilize a wired transmission link directly to server **48**. As previously described, the communications medium may be specified by multiple types of transmission specifications, such as Bluetooth. In addition, as previously described, data transmission across the communications medium may be supported by multiple data transmission protocols, such as XML.

With reference now to **FIG. 4**, there is illustrated a block diagram of a storage structure for food menu items in accordance with the present invention. As depicted, the food menu items corresponding to a menus from restaurants "1" and "2" are preferably stored in a data storage structure such as database **60**. The example database **60** is provided in order to depict a selection of fields **62** which may be included in a data storage structure that is filterable. For the purposes of example, food menu items have been entered for rows **64, 66** and **68**. In alternate embodiments, alternate selections of fields for defining food and health data for food menu items may

be utilized. In addition, alternate types of data storage
structures and methods may be utilized. Further, while
not depicted, a graphical interface for entering a
selection of fields **62** and food menu items is preferably
5   provided.

As depicted in **FIG. 4**, fields **62** include multiple
fields. For example, a menu number field designates to
which menu an item belongs such that multiple menus may be
10   included within a single data storage structure. Next, an
item name field provides the name of an item. A price
field provides the price of the item. A type of currency
field designates the currency that the price is list in.
A description field may provide a textual description of
15   the menu item. Fields such as the heart smart field
designate overall ratings of the food menu item. An
overall dietary daily values field includes a breakdown of
the serving size, calories, fat contents, carbohydrates,
protein, sodium, vitamins and other dietary values.

20
An ingredients field provides a list of all
ingredients utilized in the preparation of a menu item.
In addition, the amounts of each ingredient are
designated. Further, additional ingredients making up
25   each ingredient may be included. For example, the
ingredients that are utilized to produce brandy may be
listed. Additionally, fields are included for designating
whether or not an ingredient contains alcohol or caffeine,
utilizes organically grown and/or free range products, is
30   prepared kosher or is a vegan-friendly ingredient. In
addition, the dietary daily value breakdown for each
ingredient is provided. For example, the number of
calories provided by ½ lb. of chicken is distinguished.
Additional ratings fields for each ingredient may be
35   provided.

Referring now to **FIG. 5**, there is depicted a block
diagram of a storage structure for a selection of food
preferences in accordance with the present invention. As
illustrated, the data corresponding to a selection of food
preferences is preferably stored in a data storage
structure such as database **80**. The example database **80** is
provided in order to depict a selection of fields **72** which
may be included in a data storage structure. For the
purposes of example, food preferences have been entered
for rows **74** and **76**. In alternate embodiments, alternate
selections of fields for food preferences may be utilized.
In addition, alternate types of data storage structures
and methods may be utilized. Further, while not depicted,
a graphical interface for entering a selection of fields
72 and food preferences is preferably provided by a data
processing system such as computer system **10**.

As illustrated in **FIG. 5**, fields **72** include multiple
fields that are utilized for filtering a food menu. For
example, a user field designates the user of the
specifications for a row such that preferences for
multiple users may be included. Next, an age field
designates the age of each user. The age of the user is
preferably automatically incremented from the user's
birthdate. The price range field includes price range
limits. Price range limits may be set by the user, or may
be set automatically by a money management application
that tracks the customer's available resources and
budgetary constraints. Alternatively, a user may
designate a particular price range of breakfasts, lunches
and dinners. In addition, the user may designate a
particular price range depending on who the user is dining
with. A currency preference field designates in which
currency the user would prefer to see prices listed.

Further a special instructions field may include other special instructions that the user designates.

~~Ingredients to avoid field includes ingredients which~~ the user does not want included. Preparation preferences field designates any preparation preferences that the user desires. Ratings selection field includes multiple fields including alcohol preference, caffeine preference, heart smart meal preference, organic product preference, kosher preparation preference, protein preference, fat preference, calorie preference. Protein preference, fat preferences and calorie preference may be fields that are set by the user or alternatively may be set by a food monitoring program that controls the amount of protein, ~~fat and calories that a user consumes daily.~~

In addition, a user may designate the level of security that is desired with the data for each user ID. For example, a security preference may block a user ID from being accessed. In another example, a security preference may designate who can access the food preferences and how long the data can be held in an alternate data storage device. As is well known in the art, other types of data security may be designated by the user to protect their food preference data.

With reference now to **FIGS. 6a-6c**, there is depicted a graphical representation of a specialized electronic food menu according the method and system of a preferred embodiment of the present invention. In the examples, the specialized electronic food menu is determined by food preferences for user 1. Food preferences for user 1 are depicted at row **74** of **FIG. 5** and have preferably been previously stored in a manner that is accessible to computer system **10**. In comparing the food menu items

illustrated at rows **64** and **66** of **FIG. 4** with the user
preferences for user 1, "Dish 1" is selected from the menu
items.

5   Referring to **FIG. 6a**, a graphical display **80** includes
a graphical representation **82** of a specialized electronic
food menu, wherein graphical representation **82** depicts
only the menu items that are selected. In the present
example, only Dish 1 meets the customer's food
10   preferences. With reference to **FIG. 6b**, a graphical
display **92** includes a graphical representation **94** of a
specialized electronic food menu, wherein graphical
representation **94** illustrates all the menu items, however
the menu items that are not selected are flagged. In the
15   example, Dessert 1 and App 1 are flagged as not meeting
the customer's food preferences. In addition, a
description and price of the flagged items is not
included. However, in alternate embodiments, the
description and price of flagged items may be included.
20   Referring to **FIG. 6c**, a graphical display **96** includes a
graphical representation **98** of a specialized electronic
food menu. In the example, an output preferences for user
1 specifies output in a large font size. Therefore,
graphical representation **98** illustrates the specialized
25   menu at a particular large font size. Preferably, the
user can specify a font size or a range of font sizes for
the text of a specialized food menu.

In both embodiments depicted, a user may select the
30   scroll bar **88** in order to scroll through the menu for user
1 utilizing pointing indicator **90**. In addition, the user
may select from buttons **84** and **86** to perform functions
such as placing an order or switching user preferences.
In alternate embodiments, alternate types of graphical
35   displays may be provided. In addition, the display is

preferably adjusted according to any user display
preferences, as previously described. Further, as
previously described, while a graphical representation of
a specialized electronic food menu is displayed utilizing

5   one rendering method, other rendering methods may be
utilized.

Referring now to **FIG. 7**, there is illustrated a high
level logic flowchart of a process for specializing an
10   electronic food menu for a particular customer.   As
depicted, the process starts at block **100** and thereafter
proceeds to block **102**. Block **102** illustrates a
determination as to whether a request to retrieve a food
menu is received. If a request to retrieve a food menu is
15   not received, the process iterates at block **102**. If a
request to retrieve a food menu is received, the process
passes to block **104**. Block **104** depicts transmitting a
request for a food menu. In particular, the request for a
food menu is transmitted to a data storage medium via the
20   particular communications media utilized by the computer
system performing the process. Next, block **106**
illustrates a determination as to whether a connection to
the food menu is received. If the connection to the food
menu is not yet received, the process passes to block **104**.
25   If the connection to the food menu is received, the
process passes to block **108**.

Block **108** depicts setting the current item to the
first food menu item of the food menu received. Next,
30   block **110** illustrates comparing the current item with the
food preferences for a particular customer. Thereafter,
block **112** depicts a determination as to whether the
current item satisfies the food preferences for the
particular customer. If the current item does not satisfy
35   the user preferences for the particular customer, the

process passes to block **113**. Block **113** illustrates
designating the ingredients that do not satisfy the food
preferences. Next, block **115** depicts determining
substitute ingredients for those ingredients that do not

5   satisfy the food preferences. The restaurant may provide
a list of substitute ingredients with the food menu items
or the computer system may include a list of substitute
ingredients. If the current item does satisfy the user
preferences for the particular customer, the process

10   passes to block **114**. Block **114** illustrates designating
the current item as a food menu item selection.
Thereafter, the process passes to block **116**.

Block **116** illustrates a determination as to whether

15   any food menu items remain. If there are not any
remaining food menu items, the process passes to block
120. If there are remaining food menu items, the process
passes to block **118**. Block **118** depicts setting the
current item to the next food menu item. Thereafter, the

20   process passes to block **110**.

Block **120** depicts a determination as to whether any
user output preferences are set for the particular
customer. If no user output preferences are set for the

25   particular customer, the process passes to block **122**.
Block **122** illustrates setting the output mode to a generic
graphical display and thereafter the process passes to
block **126**. If user output preferences are set for the
particular customer, the process passes to block **124**.

30   Block **124** depicts setting the output mode according to the
user output preferences. Thereafter, block **126**
illustrates outputting the specified electronic food menu
in the output mode, wherein food menu items that satisfy
food preferences for the particular customer are

35   distinguishable. Next, block **128** depicts storing the

specified electronic food menu. Thereafter, the process
ends. As previously described, output preferences may
include the color, sequence, size and other graphical
distinctions. In addition, output preferences may
designate displaying only those food menu items that
satisfy user preferences. Moreover, output preferences
may indicate what informational data a user wants with the
food menu items.

With reference now to **FIG. 8**, there is depicted a
high level logic flowchart of a process for placing a food
order. As illustrated, the process starts at block **130**
and thereafter proceeds to block **132**. Block **132** depicts a
determination as to whether a request to place an order is
made. Requests to place orders may come from a user
selecting an order from a specified electronic food menu
or may come from a queued order stored on the customer's
computer system. If a request to place an order is not
made, the process iterates at block **132**. If a request to
place an order is made, the process passes to block **134**.
Block **134** illustrates detecting food menu items that are
selected by the user. Next, block **142** depicts calculating
a price for the order with adjustment for any electronic
coupons being redeemed. Thereafter, block **144** illustrates
transmitting electronic payment data. Next, block **146**
depicts a determination as to whether payment
authorization is received. If payment authorization is
not received, the process passes to block **148**. Block **148**
illustrates outputting an error message and then the
process ends. If payment authorization is received, the
process passes to block **136**.

Block **136** depicts attaching special requests to the
food menu items selected by the user. Thereafter, block
138 illustrates converting the food menu items selected by

the user into a transmittable format. Next, block **140**
depicts transmitting the converted food menu items
selected by the user to an order queue of a data storage
medium. Thereafter, the process ends. While one

5   embodiment of a process for placing a food order is
depicted, alternate processes may be utilized for placing
food orders wherein users select from the specialized
electronic food menu and that selection is transmitted to
an order queue or other order system.

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Referring now to **FIG. 9**, there is illustrated a high
level logic flowchart of a process for presenting
electronic coupons. As depicted, the process starts at
block **150** and thereafter proceeds to block **152**. Block **152**

15   illustrates a determination as to whether any electronic
coupons are received with the food menu items.
Thereafter, block **153** depicts filtering the electronic
coupons according to food preferences. Next, block **154**
illustrates a determination as to whether any calendar

20   based electronic coupons are received. If calendar based
electronic coupons are received, the process passes to
block **158**. Block **158** depicts updating an electronic
calendar with the calendar based electronic coupons and
the process passes to block **156**. Block **156** illustrates

25   updating the graphical display with any non-calendar based
electronic coupons and the process ends.

It is important to note that, although the present
invention has been described in the context of a fully

30   functional computer system, those skilled in the art will
appreciate that the mechanisms of the present invention
are capable of being distributed as a program product in a
variety of forms, and that the present invention applies
equally regardless of the particular type of signal-

35   bearing media utilized to actually carry out the

distribution.   Examples of signal-bearing media include, but are not limited to, recordable-type media such as floppy disks or CD-ROMs and transmission-type media such as analogue or digital communications links.

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While the invention has been particularly shown and described with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes in form and detail may be made therein

10   without departing from the spirit and scope of the invention.